



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,362	04/13/2004	Douglas L. Youngblood	INSL.0096	4878
26122 7590 10/02/2007 LAW OFFICES OF GARY R. STANFORD 330 W OVERLOOK MOUNTAIN RD BUDA, TX 78610			EXAMINER KANGARLOO, RAMTIN	
			ART UNIT 2609	PAPER NUMBER
			MAIL DATE 10/02/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/823,362	Applicant(s) YOUNGBLOOD ET AL.	
	Examiner Ramtin Kangarloo	Art Unit 2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 4 - 20 is/are rejected.
- 7) ☒ Claim(s) 2 - 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 10, and 16 - 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Su (US Patent No 5212808)

Regarding **claim 1**, a digitally configurable multiplexer/de-multiplexer, comprising: a plurality of multiplexers, each receiving a plurality of address signals, selecting from among a plurality of first data signals (fig.1), and coupling a selected first data signal to a corresponding one of a plurality of multiplexed signals (fig.6); a switch matrix having a first interface coupled to said plurality of multiplexed signals and a second interface coupled to a plurality of second data signals (fig.6); and configuration logic receiving a plurality of selection signals and coupled to control said switch matrix to couple selected ones of said plurality of multiplexed signals to said second interface (See col. 9, Lines 32 – 40 and Lines 49 – 53).

Regarding **claim 10**, an integrated circuit (IC), comprising: a first interface including a plurality of first analog signal lines (See col.9, Line 34-35); a second interface including a plurality of second analog signal lines; a third interface including a plurality of select signal lines (fig.1 and fig. 6); a plurality of multiplexers (See col. 4, Lines 15-18), each having a plurality of data signal lines coupled to said first interface, a plurality of address inputs coupled to said third interface, and a corresponding one of a plurality of multiplexed signal lines (fig.1 and fig.6); a switch matrix, having a multiplexed interface coupled to said multiplexed signal lines and a data interface coupled to said second interface; and configuration logic, having an input coupled to said third interface and an output coupled to control said switch matrix to couple selected multiplexed signal lines to said second interface (See col. 9, Lines 32 – 40 and Lines 49 – 53).

Regarding **claim 16**, a method of routing a plurality of analog signals, comprising: distributing a plurality of first analog signals among a plurality of multiplexers (See col. 3, Lines 6 – 8); selecting a configuration for the plurality of multiplexers; addressing the plurality of multiplexers according to the selected configuration (See col. 7, Lines 54 – 57 and 59 – 61); and coupling selected ones of a plurality of multiplexed signals from the plurality of multiplexers according to the selected configuration to a plurality of second analog data signals (See col. 8, Lines 45 – 48).

Regarding **claim 17**, the method of claim 16, wherein said selecting a

Art Unit: 2609

configuration comprises combining the plurality of multiplexers into groups (See col. 9, Lines 25 - 30).

Regarding **claim 18**, the method of claim 17, wherein said addressing the plurality of multiplexers comprises routing a common set of address signals to each multiplexer of a group of multiplexers (See col. 9, Lines 49 – 53 and col. 4, Lines 15 – 18).

Regarding **claim 19**, the method of claim 18, wherein said coupling selected ones of a plurality of multiplexed signals from the plurality of multiplexers comprises selecting a multiplexed signal of a multiplexer of a group of multiplexers (See col. 9, Lines 49 – 53).

Regarding **claim 20**, the method of claim 19, wherein said selecting a multiplexed signal of a multiplexer of a group of multiplexers comprises selecting based on at least one address signal (See col. 9, Lines 55 – 59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

Art Unit: 2609

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent No 5212808) in view of Wachs (US Patent No 3813497)

Regarding **claim 4**, Su disclose all of the limitations as applied to claim 1 and 10. Su does not specifically disclose single-pole, single-throw (SPST) switches. Wachs teaches switch matrix comprises an array of single-pole, single-throw (SPST) switches (See col. 1, Lines 49 – 54).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount single-pole, single-throw (SPST) switches taught by Wachs onto the multiplex system as shown in Su, in order to control input signals so that the systems become well organized.

Regarding **claim 11**, Su disclose all of the limitations as applied to claim 10. Su does not specifically disclose single-pole, single-throw (SPST) switches. Wachs teaches switch matrix comprises an array of single-pole, single-throw (SPST) switches (See col. 1, Lines 49 – 54).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount single-pole, single-throw (SPST) switches taught by Wachs onto the multiplex system as shown in Su, in order to control input signals so that the systems become well organized.

Art Unit: 2609

5. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent No 5212808) in view of Wachs (US Patent No 3813497) as applied to claim 4 and 11 above, and further in view of Crosby (US Patent No 4597487).

Regarding **claim 5**, Su and Wachs disclose all of the limitation as applied to claim 4. Su and Wachs do not specifically disclose about first decoder and second decoder. Crosby teaches configuration logic comprises a first decoder receiving at least one configuration signal, a second decoder receiving at least one address signal, and digital logic coupled to said first and second decoders to control said array of SPST switches (See col. 28, Lines 49 – 55 and 61 – 68, and Col. 40, Lines 1-2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount decoders and configuration signal taught by Crosby in to the multiplex system as show in the system of Su and Wachs in order to control SPST switch so that the systems run more efficient.

Regarding **claim 12**, Su and Wachs disclose all of the limitation as applied to claim 11. Su and Wachs do not specifically disclose about first decoder and second decoder. Crosby teaches configuration logic comprises a first decoder receiving at least one configuration signal, a second decoder receiving at least one address signal, and digital logic coupled to said first and second decoders to

Art Unit: 2609

control said array of SPST switches (See col. 28, Lines 49 – 55 and 61 – 68, and Col. 40, Lines 1-2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount decoders and configuration signal taught by Crosby in to the multiplex system as show in the system of Su and Wachs in order to control SPST switch so that the systems run more efficient.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent No 5212808) in view of Wachs (US Patent No 3813497) as applied to claim 4 above, and further in view of Rogers (US Patent No 4878215).

Regarding **claim 6**, Su and Wachs disclose all of the limitation as applied to claim 4. Su and Wachs do not specifically disclose register. Rogers teaches configuration logic comprises at least one register (See col. 5, Lines 48 – 52 and Col. 6, Lines 1 – 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount register taught by Rogers in to the multiplex system as show in the system of Su and Wachs in order to save data before processing so that the systems run quicker.

7. Claims 7- 9 and 13 - 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su (US Patent No 5212808) in view of Rogers (US Patent No 4878215)

Regarding **claim 7**, Su disclose all of the limitation as applied to claim 1. Su does not specifically disclose register. Rogers teaches configuration logic comprises at least one register (See col. 5, Lines 48 – 52 and Col. 6, Lines 1 – 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount register taught by Rogers in to the multiplex system as show in Su, in order to save data before processing so that the systems run quicker.

Regarding **claim 8**, Su disclose all of the limitation as applied to claim 1. Su does not specifically disclose Cross-Point switch. Rogers teaches switching matrix comprises a cross-point matrix switch (See col. 5, Lines 48 – 52 and Col. 6, Lines 1 – 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount Cross-Point switch taught by Rogers in to the multiplex system as show in Su, in order to manage data so that the systems become well organized.

Regarding **claim 9**, Su disclose all of the limitation as applied to claim 1 and 8. Su does not specifically disclose register. Rogers teaches configuration logic comprises at least one register (See col. 5, Lines 48 – 52 and Col. 6, Lines 1 – 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount register taught by Rogers in to the multiplex system as show in Su, in order to save data before processing so that the systems run quicker.

Regarding **claim 13**, Su disclose all of the limitation as applied to claim 10. Su does not specifically disclose register. Rogers teaches configuration logic comprises at least one register programmable via said third interface (See col. 5, Lines 48 – 52 and Col. 6, Lines 1 – 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount register taught by Rogers in to the multiplex system as show in Su, in order to save data before processing so that the systems run quicker.

Regarding **claim 14**, Su disclose all of the limitation as applied to claim 10. Su does not specifically disclose Cross-Point switch. Rogers teaches switching matrix comprises a cross-point matrix switch (See col. 5, Lines 48 – 52 and Col. 6, Lines 1 – 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount Cross-Point switch taught by Rogers in to the multiplex system as show in Su, in order to manage data so that the systems become well organized.

Regarding **claim 15**, Su disclose all of the limitation as applied to claim 10 and 14. Su does not specifically disclose register. Rogers teaches configuration logic comprises at least one register programmable via said third interface (See col. 5, Lines 48 – 52 and Col. 6, Lines 1 – 2).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount register taught by Rogers in to the multiplex system as show in Su, in order to save data before processed so that the systems run quicker.

Allowable Subject Matter

8. Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Su (US Patent No 5212808) teaches the digitally configurable multiplexer/de-multiplexer including switch matrix and configuration logic. However prior art of record fail to teach plurality of multiplexers comprises M multiplexers, each receiving N address N signals and coupling a selected one of 2 first data signals to a corresponding one of M multiplexed signals in which N, M, $Y = \text{LOG}_2 M$ and N are positive integers, and wherein said configuration logic

Art Unit: 2609

controls said switch matrix to configure said M multiplexers as a number $M/(2Y-x)$ of $(M/2X)$ $(2N)$: 1 multiplexer(s) in which X is a selected integer between 0 and Y. Furthermore, claim 3 is objected to be allowable since it is dependent to claim 2.

Conclusion

9. Any response to this Office Action should be **faxed** to (571)-273-8300 or **Mailed**

to :

Commissioner for Patents,
P.O.Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramtin Kangarloo whose telephone number is (571) 270-3452. The examiner can normally be reached on Monday to Thursday 7:30 AM to 5:00 PM.

Art Unit: 2609

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Tieu can be reached on (571) 272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramtin Kangarloo
Examiner Art Unit 2609
September 24, 2007


BENNY Q. TIEU
SPE/TRAINER